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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,938	09/24/2003	Achintya K. Bhowmik	ITL.1014US (P16650)	4613

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EXAMINER	
DUPUIS, DEREK L	
ART UNIT	**PAPER NUMBER**
2883	

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,938	BHOWMIK, ACHINTYA K.	
	Examiner	Art Unit	
	Derek L. Dupuis	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/19/2006 have been fully considered but they are not persuasive. Applicant cites paragraph 95 as teaching that the amount of dispersion compensation is fixed. The disclosure of Chien is directed towards two areas. In the summary, Chien states that the disclosure will address a dispersion compensator (see paragraph 12) as well as an inventive coating of an optical fiber that is included as a part of the compensator device (see paragraph 13). Paragraph 95 is directed towards this inventive coating. Specifically, paragraph 95 is directed towards the process in manufacturing the optical fiber coating. The stress of a predetermined amplitude is not used in reference to the stress applied by the piezoelectric actuators of the compensation device. Rather, this stress of a predetermined amplitude is in reference to stress applied during manufacturing to result in desirably coating qualities.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by ***Chien et al (US 2002/0168165, hereinafter "Chien")***.

4. Regarding claim 1, Chien teaches a method comprising determing an amount of dispersion in an optical system. Specifically, in paragraph 52, Chien teaches that an amount of

polarization mode dispersion (PMD) in an optical signal is measured by a detector (see lines 5-8 of paragraph 52). Chien teaches applying an amount of stress to an optical medium to provide dispersion compensation for the determined amount of dispersion. Specifically, in paragraph 52, Chien teaches that based on the detected amount of dispersion, a processor controls a dispersion compensator (specifically, a series of piezoelectric actuators) to lower the amount of PMD in the signal (see lines 8-12 of paragraph 52). In paragraph 41, Chien teaches that the piezoelectric actuators (also called "mechanical squeezers") compensate for PMD in fibers. In paragraphs 8-10, Chien teaches that the amount of stress can control the amount of compensation in a PMD compensator.

5. Regarding claim 2, Chien teaches a method as discussed above in reference to claim 1. Chien teaches that stress is applied to a photoelastic medium to generate a corrective PMD of the opposite polarity of a dispersion induced in the medium (see paragraphs 8-10).

6. Regarding claim 3, Chien teaches a method as discussed above in reference to claim 2. Chien teaches that piezoelectric devices are used to generate stress (see paragraphs 8-10).

7. Regarding claim 4, Chien teaches a method as discussed above in reference to claim 3. Chien et al teaches that the amount of stress determines the amount of PMD compensation applied to the medium (see paragraphs 8-10). Chien teaches that the actuators are controlled based upon the applied voltages (see paragraph 52).

8. Regarding claim 5, Chien teaches a method as discussed above in reference to claim 4. Chien et al teach that the piezoelectric actuators are attached the medium (the fiber) and that an optical signal is passed through the medium (see paragraphs 50-53).

9. Regarding claim 6, Chien teaches a method comprising securing a photoelastic medium to a piezoelectric device. Specifically, in paragraphs 41 and 47-52, Chien et al teach that the piezoelectric actuators (also called "mechanical squeezers") are secured to the fibers of the PMD compensation device. Chien teaches determing an amount of dispersion in an optical system. Specifically, in paragraph 52, Chien teaches that an amount of polarization mode dispersion (PMD) in an optical signal is measured by a detector (see lines 5-8 of paragraph 52). Chien teaches applying an amount of stress to an optical medium to provide dispersion compensation for the determined amount of dispersion. Specifically, in paragraph 52, Chien teaches that based on the detected amount of dispersion, a processor controls a dispersion compensator (specifically, a series of piezoelectric actuators) to lower the amount of PMD in the signal (see lines 8-12 of paragraph 52). In paragraph 41, Chien teaches that the piezoelectric actuators (also called "mechanical squeezers") compensate for PMD in fibers. In paragraphs 8-10, Chien teaches that the amount of stress can control the amount of compensation in a PMD compensator. Chien teaches variably applying a tunable voltage in paragraph 52. The voltage signal sent to the piezoelectric device is varied so as to desirably control the amount of compensation (see lines 8-12 of paragraph 52). The tunable voltage signal is varied based upon the amount of dispersion measured by the detector (see lines 5-12 of paragraph 52). To summarize, the detector measures the dispersion present in the medium and determines an amount of dispersion. Based upon this measured dispersion, the processor sends a voltage signal that desirably controls the various piezoelectric actuators of the compensator so as to compensate for the measured dispersion. This process is continuously performed as the system is set in a feedback loop (see paragraph 50). The detector continuously measures the dispersion in the

system and variably applies a tunable voltage to the piezoelectric device that controls the various piezoelectric actuators that induce stress on the medium to result in desired amount of PMD compensation (see paragraphs 50-52).

10. Regarding claims 7 and 8, Chien teaches a method as discussed above in reference to claim 6. Chien also teaches controlling the voltage applied to the piezoelectric device to generate a dispersion of substantially the same magnitude and an opposite polarity of the dispersion generated in the optical system (Figs 1-4, and paragraphs 3, 8-10, 12, 41, 42, 45, 47, 50-52). The dispersion compensation is tuned based on the voltage level. The voltage is tuned based on the amount of dispersion detected in the medium (see paragraphs 50-52).

11. Regarding claims 9-15, Chien discloses an optical system (400) comprising: an optical medium (305) defining an optical path; a photoelastic material in the optical path; devices (piezoelectric actuators) (307 or 402) that tunably stress the photoelastic medium to variably generate a dispersion of an appropriate polarity and magnitude to correct a determined dispersion inducted in the optical medium, the piezoelectric actuators are coupled/secured to the photosensitive medium to provide a tunable magnitude and polarity of dispersion to cancel dispersion generated along the optical path by the optical medium (Figs 1-4; and paragraphs 3, 8-10, 12, 41, 42, 45, 47, 50-52). The piezoelectric actuators tunably apply stress so as to tunably control the varying levels of dispersion in the medium (see specifically, paragraphs 50-52). The determined amount of dispersion is measured by the detector element which sends a signal to a processor. The processor sends a signal to a tunable piezoelectric device that includes multiple piezoelectric actuators. The signal controls the actuators so as to controllably apply stress to the medium so as to compensate for the determined amount of dispersion (see paragraphs 50-52).

Conclusion

12. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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